



## **TENNESSEE SEVERE WEATHER AWARENESS WEEK**

**February 24 – February 29, 2008**

The National Weather Service, the Tennessee Emergency Management Agency and other supporting organizations are working together to help in providing the public with information about severe weather safety. Advance planning and increased awareness will help Tennesseans survive these deadly storms. **Governor Phil Bredesen** has proclaimed **February 24- 29, 2008**, as "**SEVERE WEATHER AWARENESS WEEK**" in Tennessee.

As we move into our Spring, now is the time to prepare ourselves for the hazards and dangers associated with severe weather. Severe weather can and does occur any time of the day and anytime during the year.



An EF0 (winds 65-85 mph) tornado struck White County on November 14, 2007. This picture shows a mobile home that blew off its foundation and rolled across a street.

**Are You Prepared? Do You Know What To Do?**

## **Tennessee Severe Weather Awareness Week Events February 24 - February 29, 2008**

Throughout the week, the National Weather Service, Tennessee Emergency Management Agency and other supporting groups will conduct educational activities and drills to help people prevent injuries and deaths from tornadoes, damaging winds, flash floods, lightning, and hail. Each day of the week focuses on a specific type of severe weather or on the warning and drill system.

**Sunday, February 24**, begins the week by highlighting SKYWARN (Amateur Radio Volunteers) and the Emergency Managers Weather Information System (EMWIN).

**Monday, February 25**, will look at Severe Thunderstorms. Damaging winds from severe thunderstorms are much more frequent than tornadoes in the Mid-South. These straight line winds can reach well over 100 miles an hour and can be devastating.

**Tuesday, February 26**, will focus on lightning, one of the underrated killers. All thunderstorms have lightning and this hazard can be deceptively deadly.

**Wednesday, February 27**, will emphasize Tornado Safety. Over and over again, people survive tornadic weather by knowing weather safety rules and taking appropriate and timely actions. A state-wide tornado drill will be conducted on this day. Schools and state, county, and other interested agencies are encouraged to participate and help everyone learn life saving rules. Thursday will be the alternate drill day if adverse weather is expected on Wednesday.

**Thursday, February 28**, draws attention to hazards of Flooding and Flash Floods. Flooding is the number one weather killer in the United States. Flash Floods are most prevalent in the east half of Tennessee while River Flooding is more common in the western sections.

**Friday, February 29**, will be the NOAA Weather Radio and Emergency Alert System Day.

## **Severe Weather Definitions**

### **TORNADO WATCH:**

Tornadoes are possible in the designated WATCH area. Remain alert for approaching storms. Keep track of the latest forecasts and be ready to take cover if severe weather threatens.

### **TORNADO WARNING:**

A tornado has been sighted or indicated by Doppler weather radar. Warnings mean that severe weather is occurring!! **TAKE COVER IMMEDIATELY!!**

### **SEVERE THUNDERSTORM WATCH:**

Severe Thunderstorms are possible in the designated WATCH area.

### **SEVERE THUNDERSTORM WARNING:**

Severe Thunderstorms are occurring. Move to your planned place of safety. **Remember, Severe Thunderstorms occasionally produce tornadoes with little or no warning!!**

### **FLASH FLOOD or FLOOD WATCH:**

Flash flooding or flooding is possible in the designated WATCH area. Be alert.

### **FLASH FLOOD or FLOOD WARNING:**

Flash flooding or flooding has been reported or is imminent. Take necessary precautions at once.

### **URBAN and SMALL STREAM FLOOD ADVISORY:**

Flooding of small streams, streets, and low-lying areas such as underpasses and urban storm drains is occurring.



National Weather Service  
320 Sparkman Drive  
Huntsville, AL 35805



StormReady is a nationwide community preparedness program that uses a grassroots approach to help communities develop plans to handle all types of severe weather, from tornadoes to tsunamis. The program encourages communities to take a new, proactive approach to improving local hazardous weather operations by providing emergency managers with clear cut guidelines on how to improve their hazardous weather operations.

The following counties are StormReady:

Lincoln	Moore	Franklin
Colbert	Cullman	DeKalb
Franklin (AL)	Jackson	Lauderdale
Lawrence	Limestone	Madison
Marshall	Morgan	

To be officially StormReady, a community must:

*\*Establish a 24 hour warning point and emergency operations center.*

*\*Have more than one way to receive severe weather warnings and forecasts to alert the public.*

*\*Create a system that monitors weather locally.*

*\*Promote the importance of public readiness through community seminars.*

*\*Develop a formal hazardous weather plan, which includes training severe weather spotters, and holding emergency exercises.*

For more information on what is required for your community or county, contact Michael Coyne or Tim Troutman at the National Weather Service Forecast Office in Huntsville at (256) 890-8503.

StormReady information is available on the Internet website:

[www.nws.noaa.gov/stormready/](http://www.nws.noaa.gov/stormready/).

## SKYWARN IN TENNESSEE

### The Eyes and Ears of National Weather Service in the field.

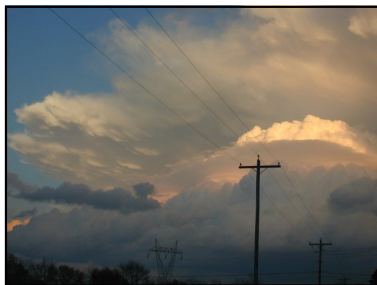
Sunday, February 24, 2008



SKYWARN is the program developed by the National Weather Service to recruit and train storm spotters. SKYWARN spotters enhance the National Weather Service's storm detection capabilities by identifying and reporting potentially dangerous weather conditions. The SKYWARN program has become an invaluable link in the NWS warning process.

Despite all of the sophisticated technology used in a modern NWS office, forecasters still rely on storm spotters. Doppler radar may indicate that a storm may be producing large hail, damaging winds or even a tornado, but it cannot tell exactly what's happening on the ground underneath the storm. Storm spotters, trained by NWS meteorologists, act as the eyes and ears of the NWS. Their reports, radar data and other information result in the most timely and accurate warnings possible.

SKYWARN spotters in Tennessee come from all walks of life – law enforcement, fire or emergency management agencies and citizens interested in helping their communities. A large number of storm spotters are amateur radio operators, who volunteer their time and equipment to help the NWS detect and track severe storms. Amateur radio operators, or "hams", will frequently man radio equipment at the local NWS office, gathering reports from spotters in the field and relaying the data directly to NWS forecasters. SKYWARN spotters are volunteers – they receive no compensation for their hard work. They do, however, have the satisfaction of knowing that their reports result in better warnings which save lives. For more information on SKYWARN, or to schedule a storm spotter class in your area, contact Tim Troutman at the NWS at (256) 890-8503.



## Severe Thunderstorm Day Monday, February 25, 2008

**Severe thunderstorms** can strike any time of the year. Severe thunderstorms and tornadoes are more frequent in the spring months of March, April and May. Tennessee also has a "secondary" severe weather season in November and December. Severe thunderstorms can, and do, occur anytime of the day and night and during any month of the year. Damaging thunderstorm winds are much more common in Tennessee than tornadoes.

The National Weather Service defines a thunderstorm as "**severe**" when wind speeds reach **58 mph (50 kts)** or stronger and/or 3/4 inch hail (or larger) falls from the storm. Winds from severe thunderstorms can well exceed 100 mph, overturning trailers, unroofing homes, and toppling trees and power lines. Most of the storm damage in the Mid-South is caused by "straight line winds" from thunderstorm downbursts. Severe Thunderstorm wind speeds may exceed the wind speeds of weak tornadoes. All thunderstorms are capable of producing deadly lightning.

### PLEASE NOTE:

**Severe thunderstorms can produce tornadoes with little or no warning!!**

### Severe Thunderstorm Safety Rules

**FIND SHELTER IMMEDIATELY.** Go to a sturdy building that will withstand high winds. Avoid electrical appliances, metal pipes and corded telephones.

When a **Severe Thunderstorm Warning** is issued for your location, treat it the same as you would a **Tornado Warning**. Remember that severe thunderstorms can produce damaging winds, large hail and deadly lightning.

#### Hail Size Estimates (Diameter in inches)

Pea .....	1/4 inch	Golfball.....	1 3/4 inch
Penny.....	3/4 inch	Tennis Ball...	2 1/2 inch
Quarter.....	1 inch	Baseball.....	2 3/4 inch
Half Dollar...	1 1/4 inch	Grapefruit...	4 inch

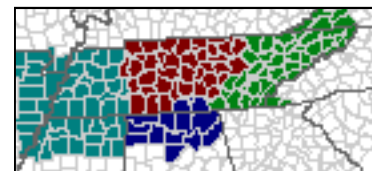
#### Wind Speed Estimates

Speed (MPH)	Effects
25-31.....	Large branches in motion; whistling in telephone wires
32-38.....	Whole trees in motion
39-54.....	Twigs break off of trees; wind impedes walking
55-72.....	Damage to chimneys and TV antennas; pushes over shallow rooted trees
73-112.....	Peels surface off roofs; windows broken; trailer homes overturned
113+.....	Roofs torn off houses. Weak buildings & trailer homes destroyed; large trees uprooted.

## For Your Information

This booklet contains materials useful during the Severe Weather Awareness Week campaign and at other times, too. You are invited to contact the National Weather Service, state and county emergency management agencies for interviews and for answers to your questions. National Weather Service personnel and local emergency management are available for weather awareness programs to civic and industrial organizations, schools, hospitals, and others interested in weather safety.

Each county in Tennessee is served by a designated National Weather Service Office as identified here:



Legend: **Nashville** | **Memphis** | **Morristown** | **Huntsville, AL**

### Please contact one of the National Weather Service Offices listed below if you need more information.

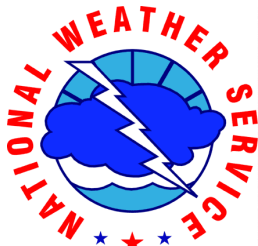
Nashville.....	Jerry Orchanian.....	(615) 754-4634
Nashville.....	Larry Vannozzi.....	(615) 754-4634
Morristown.....	Howard Waldron.....	(423) 586-8706
Morristown.....	George Matthews.....	(423) 586-6429
Memphis.....	Richard Okulski.....	(901) 544-0411
Memphis.....	Jim Belles.....	(901) 544-0411
Huntsville, AL.....	Michael Coyne.....	(256) 890-8503
Huntsville, AL.....	Tim Troutman.....	(256) 890-8503

### Information Resources on the World Wide Web

For additional resources, the following web sites are available:

NWS Nashville: [www.srh.noaa.gov/ohx](http://www.srh.noaa.gov/ohx)  
 NWS Memphis: [www.srh.noaa.gov/meg](http://www.srh.noaa.gov/meg)  
 NWS Morristown: [www.srh.noaa.gov/mrx](http://www.srh.noaa.gov/mrx)  
 NWS Huntsville: [www.srh.noaa.gov/hun](http://www.srh.noaa.gov/hun)  
 Generic Site For All NWS Offices: <http://weather.gov>



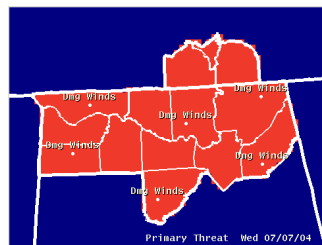
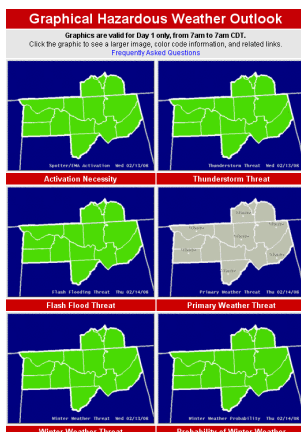
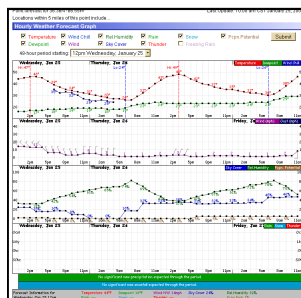


## The National Weather Service in Huntsville weather.gov/huntsville

The Huntsville National Weather Service Forecast Office provides a website that weather, hydrologic, and climate forecasts and warnings strictly for the central Tennessee Valley area.

### What You Will Find On Our Website:

- Warning/Watch/Advisory Plot Map Updated Every Minute
- NWS Radar of the Tennessee Valley and Surrounding Areas
- An Extensive County Specific Tornado Database
- Storm Preparedness Information
- Graphical PinPoint Forecasts - Within a 5 Mile Radius
- Detailed Text Forecasts
- Hourly Weather Graphs of Specific Point
- Extensive Climate Database
- StormReady Information
- Hydrological Graphics and Gaging
- Fire Weather Information
- Tropical/Hurricane Information
- NOAA Weather Radio Sites and Frequencies
- Tennessee Valley Weather Fact of the Day
- And So Much More!



weather.gov/huntsville

## Lightning The Underrated Killer Tuesday, February 26, 2008

### EVERY THUNDERSTORM CONTAINS LIGHTNING.

#### What is Lightning?



The action of rising and descending air within a thunderstorm separates positive and negative electrical charges. Lightning results from the

buildup and discharge of electrical energy between these positively and negatively charged areas. Lightning charges may reach as high as 100 million volts. This electrical charge is always searching for the path of least resistance to complete the circuit.

Lightning will normally strike the tallest object in the area of the potential discharge. Tall trees, light poles and telephone lines are frequent targets for lightning strikes. Lightning is always a potential killer. Whether the storm is a large spring-time severe storm or the more common afternoon variety, it contains this deadly killer. It may strike an isolated tree or an object out in the open, or it may strike you.

Keep in mind that you do not have to be standing directly beneath a cloud to be hit. Lightning may strike many miles from the parent storm. In an average year lightning will claim more victims than tornadoes or hurricanes.

#### Lightning Safety Rules—Outdoors

**Seek shelter** inside a house, large building or an all metal vehicle with the windows rolled up (avoid convertibles).

**If your hair stands on end and your skin tingles... lightning is about to strike. Take cover immediately!**

**If you can't find appropriate shelter**, get down to avoid being the highest point for a lightning discharge. When caught in the open, seek shelter in a low area. Crouch down and cover your head with your hands. If you are with a group of people, everyone should scatter out before crouching.

**If caught in a wooded area** seek out the area with the smallest trees. Stand at least five feet from the trunk of the nearest tree to avoid flying bark, should the tree be hit by lightning.

When boating, head for shore and get into a shelter, or vehicle. If caught in a boat, lie down in the boat with cushions between you and the boat's side and bottom.

#### AVOID

Large trees, hilltops and other high places.

Chain link fences and any other metal fences like those around ball parks and play grounds.

Motorcycles, scooters, golf carts, small metal sheds, bicycles, tractors and farm equipment that do not have an enclosed metal cab.

Do you know what group of people are most likely to get struck by lightning? It is farmers, followed then by golfers.

## Lightning Safety Rules (Continued) - Indoors



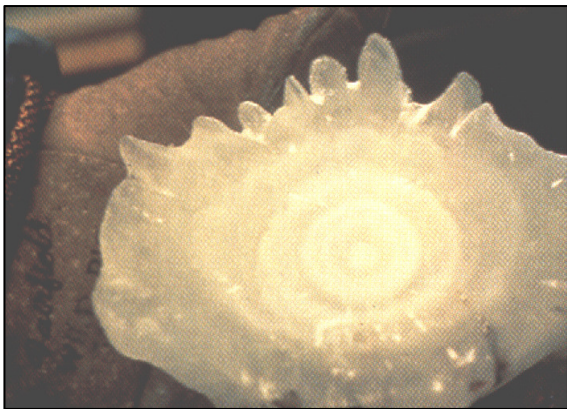
**Stay away from windows.** Avoid telephones and electrical appliances (wires connecting to these devices run outside of the home and act as lightning rods). Don't wash dishes or take a shower. The pipes will conduct electricity.

**Unplug computers** and other sensitive electrical devices (time permitting) since surge suppressors may not protect these items if lightning hits close to the home.

**Remember, there is no truth to the old myth that "lightning never strikes twice."**

Take time this week to learn or refresh your memory on lightning safety rules. That quick dash out in the open when a thunderstorm is in progress may unnecessarily expose you to the possibility of being struck. It is not worth the risk.

## Large Hail—An Added Hazard



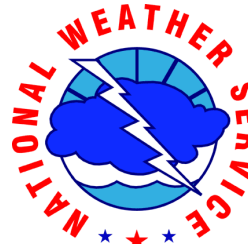
The strong rising currents of air within a storm, called updrafts, carry water droplets to a height where freezing occurs. Ice particles grow in size and become too heavy to be supported by the updraft and then fall to the ground as hail. Large hailstones may fall at speeds faster than 100 mph. Light reflecting from the large hail high up in the storm often gives the storm an eerie yellow green color. This is an indication that this storm may be strong.

Hail rarely causes deaths, but injuries do occur. If you are outside, move inside a building or a car with a hard top. Make sure that outdoor pets and other animals have access to shelter.

## The Mission of Your National Weather Service

The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community.

To get more information about our products and services, go to our website at:  
**weather.gov/huntsville**



## The National Weather Service in Huntsville **weather.gov/huntsville**

The National Weather Service (NWS) is a branch of the National Oceanic and Atmospheric Administration under the United States Department of Commerce. The Weather Forecast Office (WFO) in Huntsville, Alabama is part of the Southern Region of the NWS.

WFO Huntsville is managed by the Meteorologist-in-Charge (MIC), Michael Coyne, who is, in turn, responsible to the Director of the Southern Region. Other management personnel at Huntsville include a Warning Coordination Meteorologist (WCM), Tim Troutman, Science and Operations Officer (SOO), Chris Darden, and an Observation Program Leader (OPL), Lary Burgett.



Operational personnel include ten forecasters, whose responsibilities include issuing of severe weather warnings and statements, public (zone) forecasts and discussions, aviation forecasts (called "terminal aerodrome forecasts"), short term forecasts (called "nowcasts"), and fire weather forecasts. Hydrology Program Manager Jason Elliott manages the river program for north Alabama and southern Middle Tennessee.

The staff at WFO Huntsville is supported by Electronics Systems Analyst Brian Burgess, Information Technology Officer Jason Burks, and an Electronics Technician. One of the most important people in the office, yet also one of the least recognized, is the Administrative Assistant.

The forecasters are supported by three public service personnel (meteorologist interns and hydro-meteorological technicians). Their responsibilities include maintaining NOAA Weather Radio broadcasts, issuing various meteorological and hydrological products, answering phone calls and other public requests for information, and assisting the forecaster with general duties.

WFO Huntsville has warning responsibility for 14 counties, 11 in north Alabama and 3 in southern middle Tennessee. The county warning area generally extends from the Elk River in southern middle Tennessee in the north, to the Tennessee River in Alabama to the south. The Huntsville county warning area comprises 8,963 square miles with a population of 1,055,954 (U.S. Census Bureau, 2005).



WFO Huntsville has received three United States Department of Commerce Bronze Medal Awards for superior federal service, in 2004, 2005, and 2006, for service to the public in protecting life and property during Hurricanes Ivan and Katrina, and during the

historic May 2003 flooding event. WFO Huntsville meteorologists and staff have also received several prestigious national and regional Isaac Cline Awards.

You can telephone the office at (256) 890-8503 during normal business hours should you have questions.

**weather.gov/huntsville**



# NOAA Weather Radio

Friday, February 29, 2008

NOAA Weather Radio, the voice of the National Weather Service, provides continuous weather broadcasts 24 hours a day, every day of the year.

To receive the broadcasts originating from the National Weather Service, you need a special radio capable of receiving signals in the Very High Frequency (VHF) public service band. Across Middle Tennessee, 162.400, 162.425, 162.450, 162.475, 162.500, 162.525, and 162.550 megahertz are the frequencies in use for NOAA Weather Radio broadcasts. Middle Tennessee is served by 13 transmitters located as shown in the box below. Approximately 95 percent of the people in Tennessee are within range of a weather radio transmitter.

National Weather Service personnel prepare weather information that is repeated every three to six minutes. Broadcasts include area forecasts for the next seven days, current weather conditions, radar and short-term forecasts, weather summaries, climatic data, river and lake stage readings and other specialized information.

NOAA Weather Radio is useful all the time, but becomes even more important during severe or hazardous winter weather. During episodes of severe weather, normal broadcasts are interrupted and focus shifted to the hazardous weather threat. Watches, warnings and statements are given the highest priority and are updated as conditions change.

In an emergency, each station will transmit a warning alarm tone signal as well as the SAME (Specific Area Message Encoding)

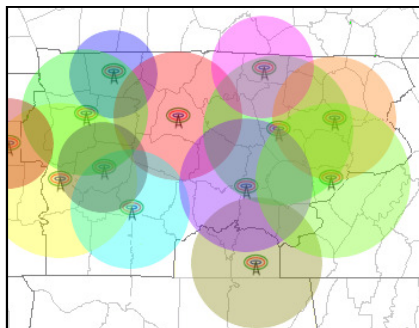
codes, followed by information on the emergency situation. These signals are capable of activating specially-designed receivers by producing a visual and/or audible alarm. Not all weather band receivers have this capability, but all radios that receive NOAA Weather Radio can receive the emergency broadcasts. The warning alarm and SAME codes are tested each Wednesday, usually between 11 am and noon, weather permitting.

Commercial radio and television stations as well as cable television companies are encouraged to use NOAA Weather Radio and may freely rebroadcast Weather Radio broadcasts. NOAA Weather Radio is also a major part of the Emergency Alert System (EAS) with improved technology to speed critical weather warning information through commercial broadcast outlets.



## NOAA Weather Radio Serving Middle Tennessee

Location	Frequency
Beechgrove.....	162.475 MHz
Centerville.....	162.450 MHz
Clarksville.....	162.500 MHz
Cookeville.....	162.400 MHz
Hickman.....	162.500 MHz
LaFayette.....	162.525 MHz
Lawrenceburg.....	162.425 MHz
Lobelville.....	162.525 MHz
Nashville.....	162.550 MHz
Spencer.....	162.500 MHz
Waverly.....	162.400 MHz
Winchester.....	162.525 MHz
Vale.....	162.450 MHz



Middle Tennessee NOAA Weather Radio coverage map

## TORNADO AWARENESS AND DRILL DAY WEDNESDAY, FEBRUARY 27, 2008

### Tornadoes...What Are They?

#### Nature's Most Violent Storms!

A **TORNADO** is a violently rotating column of air extending from the base of the thunderstorm and in contact with the ground (when it is not in contact with the ground, it is called a **FUNNEL CLOUD**). Tornado winds average 100 mph, but can exceed 300 mph. The strongest tornadoes develop from severe thunderstorms in atmospheric conditions with a wind profile that varies with height. Severe thunderstorms and tornadoes occur most often in the Mid-South in the months of March, April, and May. A secondary season occurs in the Fall, typically November and December. Most tornadoes occur in the afternoon and evening. However, tornadoes have occurred in every hour of the day and night and every month of the year. No location, time of day, or time of year is immune to tornado occurrences.



Know the difference between a

**TORNADO WATCH**  
and a  
**TORNADO WARNING.**

A **TORNADO WATCH** means tornadoes may develop, so keep an eye to the sky for thunderstorms and the dangers they pose. Listen to NOAA Weather Radio, commercial radio, or TV for weather statements or warnings. A **WATCH** allows time to plan what to do if a tornado approaches. A watch usually spans several thousand square miles, and can cover parts of more than one state.

A **TORNADO WARNING** means a tornado has been sighted, or is indicated on weather radar.

Persons in the path of the tornado should seek shelter immediately

Your **Safety** will improve if you stay alert to the risk of tornadoes from thunderstorms that approach. This is especially true if a **TORNADO WATCH** is in effect. Conditions should be carefully monitored when severe thunderstorms are occurring, or are expected to occur.

**Severe Thunderstorms can produce tornadoes with little or no warning.**

### Enhanced Fujita Intensity Scale (EF Scale)

Dr. T. Fujita was the noted meteorologist who studied tornadoes extensively and classified the damage created by these storms with the original Fujita Scale back in 1971. The enhanced scale was implemented in 2006 after years of experience and additional wind stress testing.

EF-Scale	Speed	Damage Threat
EF0 (weak)	65-85 mph	Light damage...shallow rooted trees pushed over.
EF1 (weak)	86-110 mph	Moderate damage...mobile homes overturned; roof surfaces peeled off.
EF2 (strong)	111-135 mph	Considerable damage...large trees uprooted...mobile homes destroyed
EF3 (strong)	136-165 mph	Severe damage...trains overturned; well built homes lose roofs and walls
EF4 (violent)	166-200 mph	Devastating damage...well built homes leveled; cars tossed about
EF5 (extreme)	>200 mph	Incredible damage...well built homes disintegrate; cars thrown.

## Drill Day Wednesday, February 27, 2008 9:00 - 9:30 Local Time

A **TORNADO DRILL** will be conducted Wednesday morning, February 27, 2008, between 9:00 AM and 9:30 AM **Local Time**, weather permitting, as part of SEVERE WEATHER AWARENESS WEEK in Tennessee. *If Wednesday's weather is inclement, the test will be Thursday, February 28, 2008 (same times).*

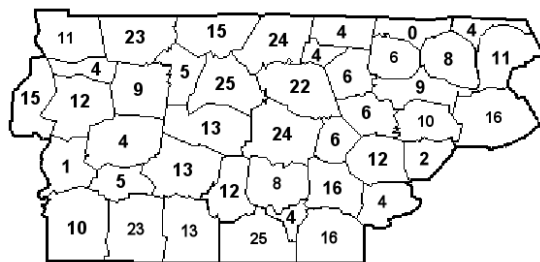
Sometime during this hour, each National Weather Service office in the state will issue a test tornado drill message. The message will be sent under the Weekly Test Product (RWT) disseminated by NOAA Weather Radio and the EAS alert system.

**The Weekly Test Product**, with the tornado drill message, will be broadcast on all NOAA Weather Radio Transmitters across Tennessee and those transmitters in North Mississippi that cover Tennessee counties.

A **Drill** such as this gives schools, churches, business offices and plant safety managers across the state a chance to check the readiness of their Severe Weather Safety plans. If your office has a plan already in place, test it to make sure your employees know how to respond properly. If your employees know how the safety procedures work, they can carry them out effectively when the time comes.

**IF YOUR WORK PLACE, SCHOOL OR CHURCH DOES NOT HAVE A SAFETY PLAN, NOW IS THE TIME TO START ONE!!** Developing a safety plan is not difficult. If a plan is easy to operate, it is more likely to be successful when needed. Countless lives are saved each year by planning, preparedness and proper education. The U.S. population has grown in recent years, yet the number of tornado deaths has diminished. This is due to agencies and individuals developing Weather Safety Plans and to people reacting in a prudent manner when severe weather threatens their areas.

**YOUR SAFETY AND THAT OF YOUR FAMILY, FRIENDS & CO-WORKERS  
DEPENDS ON YOU!!**



**The Number of Tornadoes across the Middle Tennessee County Warning Area 1950-2007**

Middle Tennessee alone averages about 16 tornadoes each year, resulting in about 1 or 2 fatalities. Our peak season for tornadoes is during March, April and May, and they are most likely to occur between 3 PM and 9 PM. A secondary maximum of tornadoes will occur in November and December, of which we have had a sad reminder on November 10, 2002.

Despite the drought, in the year 2007, the entire State of Tennessee experienced nine tornadoes, but with no fatalities.

No place is immune to tornadoes. Tornadoes have been known to occur at all hours of the day or night and at any time of the year.

Details of Tennessee storms since 1950 can be found at this National Climatic Data Center Website:

<http://www4.ncdc.noaa.gov/cgi-bin/wwwcgi.dll?wwevent~storms>



**RIVER FLOODING:** This type of flood is caused by an increased water level in an established watercourse, such as a river, creek, or drainage ditch. River flooding is generally slower to develop than flash flooding. There can be exceptions to this, especially with some smaller rivers where the time lag between the runoff from

heavy rain and the onset of flooding can be very short. This can be the case with several east Tennessee rivers and streams. On the other hand, it may take several days for a flood crest to pass downstream points on major rivers.

The National Weather Service issues **River Flood Warnings** when rivers are expected to rise above flood stage in less than six hours. Persons in the warned area are advised to take necessary precautions immediately. River stages and crest forecasts are given for selected forecast points along with known flood stages for each forecast point.

While there is usually more advanced warning time with river floods than with flash floods, persons should be familiar with the flood prone areas they live and work in, and must know what action to take and where to go if a flood occurs. Advance planning and preparation is essential.

## FLOOD SAFETY RULES:

Get out of areas subject to flooding. These include dips, low spots, stream beds, drainage ditches and culverts. If caught in low areas during flooding, go to high ground immediately.

Avoid already flooded and high velocity flow areas. A rapidly flowing stream or ditch can sweep you off your feet or even sweep your car downstream.

Be especially cautious at night when it is harder to recognize flood conditions.

Do not drive through flooded areas. The road bed may be washed away. Play it safe. **TURN AROUND, DON'T DROWN!**

If your vehicle stalls, abandon it immediately and seek higher ground. The rising water may engulf the vehicle and the occupants inside.

Do not camp or park your vehicle along streams or washes during threatening conditions.

When a Flash Flood **WARNING** is issued for your area act quickly to save yourself. You may only have seconds.



## Flash Flooding and River Flooding

Thursday, February 28, 2008

### Flooding and Flash Flooding are the number one weather related killer!



Most flood deaths occur at night and when people become trapped in automobiles that stall in areas that are flooded.

**Flash floods** occur within a few minutes or up to 6 hours after excessive rainfall, a dam or levee failure, or a sudden release of water held by an ice jam or mud slide. Flash floods can tear out trees and destroy buildings and bridges.

Because flash floods happen in a short period of time, generally less than six hours, they are more life threatening than general floods or river flooding. Areas most susceptible to flash flooding are mountainous streams and rivers, urban areas, low-lying areas, storm drains, and culverts. The mountain regions of middle and east Tennessee have potentially more flash flood problems than west Tennessee but all parts of the state are susceptible.

The **National Weather Service** issues a **Flood Watch** when conditions are detected that can result in either flood or flash flooding within a designated area, but the occurrence is neither certain nor imminent.

Persons in the watch area are advised to check flood action plans, keep informed, and be ready to take action if a warning is issued or flooding is observed.

A **Flash Flood Warning** is issued when flash flooding has been reported or is imminent. It focuses on specific communities, streams or areas where flooding is imminent or occurring.



Every state, in the United States, has reported a tornado. Even Yellowstone National Park had a tornado at an altitude of 10,000 feet on July 21, 1987. This F4 tornado had a path length of 24 miles and a path width of 1.4 miles. 15,000 acres of trees were downed.

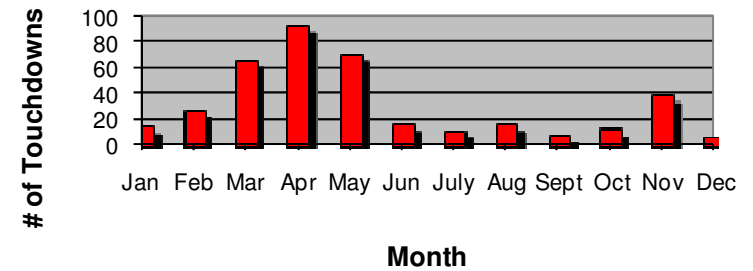
The average tornado moves from southwest to northeast, but tornadoes have been known to move in any direction. The average forward speed is 30 mph but can vary from nearly stationary to 70 mph.

The "Tri-state Tornado" on March 18, 1925, was one of the worst tornadoes on record. This F5 tornado had a path length of 219 miles, had an average forward speed of 62 mph and was on the ground for about 3 1/2 hours. The tornado started in southeast Missouri, roared through southern Illinois and ended in southwest Indiana. There were 695 deaths. 234 deaths occurred in the town of Murphysboro, IL, which made it the largest death toll within a single city, in U.S. history.

A listing of tornadoes, by state, can be found at the website of the National Climatic Data Center at [www.ncdc.noaa.gov/](http://www.ncdc.noaa.gov/)

There is an extensive tornado database for North Alabama and Southern Middle Tennessee at our website: [weather.gov/huntsville](http://weather.gov/huntsville)

### Tornado Touchdowns in Northern Alabama/Southern Middle Tennessee: 1874 - Mar 2007



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